

Hazards

* **Heat**. The process is so small/precise that you can get yourself a little too close to the action.
* **Electrical**. Watch for frays in the torch leads—it holds gas & electricity. Also take care of the pedal.
* **Eyes**.Set the shade to 10 or 11

TIG Welding 101

TIG stands for Tungsten Inert Gas.

If you know how to use a sewing machine … this will be a nice transition. The welding is different from any other welding you’ve done. Here are some differences.

* The electrode is a metal rod of Tungsten. In theory, this piece will never get used up (unlike arc welding where the rod is getting used as you weld). The Tungsten is just a conduit for electricity to pass through; which makes it very hot, which is something the tungsten can handle.
* The electricity is regulated by a foot pedal. The more ‘gas’ you give the pedal, the more voltage you apply; up to the maximum you have dialed in on the machine.
* There is an inert gas which also flows through the torch, similar to MIG welding, whose job is to make a clean environment to weld in.
* A filler metal is almost always used and is held in your other hand; similar to gas welding.
* Tig welding is done on all kinds of metal
  + In all situations the metal has to be super clean
  + There are slightly different electrodes depending on the metal being welding. They have different percentages of tungsten and other metals.



Settings

* **Gas:** Always remember to turn on the Argon gas at the bottle. The flow should stay at 15 cfh. Forgetting to do so will result in ruining the electrode.
* **Tig or Arc:** Our machine does both of these, so make sure the settings are **DC-** and the switch is on Tig
* **Voltage**: Look it up in a book. Test it. Adjust accordingly. Typ. 60-90V for 1/6” in. material up to 200V for 1/8” mild steel.

Habits

* Hold the torch like a pencil with thin gloves that allow you to feel what you’re doing
* Get a short seat so you are close to eye-level with your work
* Touch the tungsten to your work, then back it off a 1/16” to get the right distance
* Quickly add voltage to start an arc, then back it off
* When the tip loses it’s point, sharpen it using the correct grinding wheel